APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,957	11/30/2006	Kristine Fuimaono	32860-001019/US	3067

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EXAMINER
NGUYEN, HIEN NGOC

ART UNIT	PAPER NUMBER
3768	

NOTIFICATION DATE	DELIVERY MODE
09/16/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/569,957	FUIMAONO ET AL.
	Examiner	Art Unit	
	HIEN NGUYEN	3768	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 June 2010</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-3,6,8-15,17,18 and 21-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,6,8-15,17,18 and 21-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>28 February 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>06/02/2010</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 20100802

DETAILED ACTION

This action is responsive to the Argument/Amendments filed 06/24/2010. Claims

1-3, 6, 8-15, 17-18 and 21-23 are now pending.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 15, 22, 1-3, 9-10, 14 and 18 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Packer et al. (US 6,556,695), in view of Leiper (US 6,128,002) and

further in view of Rose (US 2002/0176608) and Hemler et al. (A System for

Multimodality Image Fusion (provided as prior art in the IDS)).

3.   Addressing claims 15 and 22 Packer discloses at least one input interface for

electroanatomical 3D mapping data and 3D image data, the 3D image data being high

resolution image data (see Fig. 1, col. 2, lines 14-60, col. 3, lines 51-67, col. 5, lines 45-

62, Packer discloses a system that perform an imaging method therefore the system

must have at least one input interface for electroanatomical 3D mapping data and 3D

image data); an extraction module, designed to extract at least significant portions of an

area to be treated by segmenting the 3D image data to obtain a 3D surface images of

objects in the area which is to be treated to provide selected 3D image data (see Fig.

2A, col. 6, lines 14-45 and col.7, lines 7-23, segmentation is used to extract data); a

registration module connected to the extraction module designed for automatic

correlation of the electroanatomical 3D mapping data and the selected 3D image data in

the correct position and dimension by matching the 3D surface images from the 3D

image data to a 3D surface images from the 3D mapping data (see Fig. 1, Fig. 8, col. 2,

lines 14-60 and col. 9, line 21-col.10, line 36); a visualization module connected to the

registration module to provide the 3D mapping data and the selected 3D image data for

visualization in the correct position and dimension (see abstract, Fig. 1, Fig. 8, col. 2,

lines 14-60 and col. 9, line 21-col.10, line 36, it would have been obvious to one skill in

the art at the time of the invention that the visualization module is connected to the

registration module in order to display the image). However, Packer does not explicitly

disclose a system that displays multiple images or multiple image data next to one

another or side by side, surface profile and surface matching. Leiper discloses a system

that displays multiple images side by side on one computer monitor or on multiple

computer monitors so operator can compare the images (see Fig. 4-6 and col. 4 lines

16-27). Rose discloses surface profile provide images of the surface with fine detail (see

claim 9 and [0005-0007]). Hemler discloses surface matching (see page 335, last

paragraph). It would have been obvious to one of ordinary skill in the art at the time of

the invention to modify Packer to have a system that displays multiple images side by

side on one computer monitor or on multiple computer monitors, surface profile, surface

matching as taught by Leiper, Rose and Hemler because it would be easier for

comparing and analyzing images when displaying 3D mapping data and 3D image data

side by side on the same monitor or in multiple monitors; the surface profile provide

extensive detail about the surface and surface matching is more efficient for matching

surface images because this technique does not assume a correspondence between

sample points.

4.   Addressing claim 1, this method is perform by a device in claim 15. Therefore the

method is rejected for the same reason as in claim 15.

5.   Addressing claims 2 and 3, Packer discloses the 3D image data of the body

region are recorded with a method of at least one of X-ray computer tomography and

magnetic resonance tomography (see col. 1, lines 15-35 and col. 3, lines 51-67); the 3D

image data of the body region are recorded by using 3D ultrasound method (see col. 1,

lines 15-35 and col. 3, lines 51-67).

6.   Addressing claims 10 and 14, Packer discloses the 3D image data are visualized

via a volume rendering technique (see col. 6, line 1-13); registered 3D image data, real-

time 3D mapping data and display a catheter in the selected 3D image data in real-time

(see col. 2, lines 15-60 and col. 10, line 14-36).

7.   Addressing claims 9 and 18, Hemler discloses correlate the correct position and

the correct dimension using distinct anatomical points identifiable in 3D image data and

in the 3D mapping data as an effective way to ensure the images on display are in

correct position and dimension (see page 335, last paragraph, page 337, line 7- page

338, line 32).

8.   Claims 17, 21 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Packer et al. (US 6,556,695), in view of Leiper (US 6,128,002) and further in view

of Rose (US 2002/0176608), Hemler et al. (A System for Multimodality Image Fusion

(provided as prior art in the IDS)) and Williams et al. (DE 19953308-A1).

9.   Addressing claims 17 and 21, Packer, Leiper, Rose and Hemler do not disclose

correlate the correct position and the correct dimension using artificial marker. Williams

discloses correlate the correct position and the correct dimension using artificial marker

identifiable in 3D image data and in the 3D mapping data as an effective way to ensure

the images on display are in correct position and dimension (see abstract). It would

have been obvious to one of ordinary skill in the art at the time of the invention to modify

Packer's system to correlate the correct position and the correct dimension using

artificial marker taught by Williams because using artificial markers is an effective way

to ensure the images display are in correct position and dimension.

10.   Addressing claim 6, the method is perform by a device in claim 21. Therefore the

method is rejected for the same reason as in claim 21.

11.   Claims 23 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Packer et al. (US 6,556,695), in view of Leiper (US 6,128,002) and further in view

of Rose (US 2002/0176608), Hemler et al. (A System for Multimodality Image Fusion

(provided as prior art in the IDS)) and Hughes et al. (US 7,233,340).

12.   Addressing claim 23, Packer, Leiper, Rose and Hemler do not disclose linking

two visualizations together so that when user rotates, moves or scales one of the

visualizations the other visualization is simultaneously subjected to the same rotation,

movement or scaling. Hughes discloses a visualization module for linking two

visualizations together so that when user rotates, moves or scales one of the

visualizations the other visualization is simultaneously subjected to the same rotation,

movement or scaling therefore the two visualizations would have the same position and

dimemsion (see col. 11, lines 12-59). It would have been obvious to one of ordinary skill

in the art at the time of the invention to modify Packer's system to link the two

visualizations together so that when user rotates, moves or scales one of the

visualizations the other visualization is simultaneously subjected to the same rotation,

movement or scaling taught by Hughes because by linking two visualizations together

so that when user rotates, moves or scales one of the visualizations the other

visualization is simultaneously subjected to the same rotation, movement or scaling

therefore the two visualizations would have the same position and dimension.

13.   Addressing claim 13, this method is perform by a device in claim 23. Therefore

the method is rejected for the same reason as in claim 23.

14.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Packer et

al. (US 6,556,695), in view of Leiper (US 6,128,002) and further in view of Rose (US

2002/0176608), Hemler et al. (A System for Multimodality Image Fusion (provided as

prior art in the IDS)) and Schweikard et al. (US 6,144,875).

15.   Addressing claim 8, Packer, Leiper, Rose, Hemler do not disclose an artificial

marker attach to the patient's thorax. Schweikard discloses an artificial marker attaches

to the patient's thorax to measure breathing and heart beat (see col. 7, lines 14-32). It

would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Packer's method to attach a marker to the patient's chest taught by Schweikard

because breathing and heartbeat can be measure by attaching a marker to the chest.

16.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Packer

et al. (US 6,556,695), in view of Leiper (US 6,128,002), and further in view of Rose (US

2002/0176608), Hemler et al. (A System for Multimodality Image Fusion (provided as

prior art in the IDS)) and Krishnan (US 6,771,262).

17.   Addressing claim 11, Packer, Leiper, Rose and Hemler do not disclose an

adjustable volume rendering transfer function. Krishnan discloses using an adjustable

volume rendering transfer function to specify boundary condition to improve image

quality (see col. 7, line 64-col.8, line 5). It would have been obvious to one skill in the art

at the time of the invention to modify Packer's method by using an adjustable volume

rendering transfer function because adjustable volume rendering transfer function would

specify boundary condition and improve image quality.

18.   Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Packer

et al. (US 6,556,695), in view of Leiper (US 6,128,002) and further in view of Rose (US

2002/0176608), Hemler et al. (A System for Multimodality Image Fusion (provided as

prior art in the IDS)) and Massaro et al. (US 2002/0087329).

19.   Addressing claim 12, Packer, Leiper, Rose and Hemler do not disclose visualized

image data on a polygonal grid. Massaro discloses visualize image on a polygonal grid

for easily matching location and determine distance (see claim 58). It would have been

obvious to one of ordinary skill in the art at the time of the invention to modify Packer's

method to visualized image data on a polygonal grid taught by Massaro because

polygonal grid allow the viewer to easily match location and determine distance.

Response to Arguments

Addressing claims 1 and 15, applicant argues Packer does not disclose an interface for 3D mapping and 3D image data. Applicant argument is not persuasive because Packer discloses 3D mapping and 3D image data (see col. 2, lines 42-49, in order to create a high resolution/3d image model and 3D mapping data the system must has an interface to receive these data; the system inherently has an interface that is capable of creating 2D/3D mapping and image data from the collected data).

Applicant's argues Packer, Leiper, Rose and Hemler do not disclose a registration module for automatic correlation of the electroanotomical 3D mapping data and the selected 3D image data. Applicant's argument is not persuasive because this limitation is disclosed by Packer (see col. 2, lines 44-49, col. 9, lines 53-67; electrical activation map produce from the acquired electrophysiological data is the 3D mapping data; Packer discloses overlay/merge 3d mapping data on 3d high resolution image data and this is the same as superimposed perform by the applicant; the overlay is performed by computer therefore it is an automatic process; when superimpose one image on another it would have been obvious to one of ordinary skill in the art to co-register the images in order to have accurate match between the images; a registration module inherent exist in order to register the images). Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace manual activity with automatic mean because this would only require routine skill in the art and accomplished the same result (see *In re Venner,* 120 USPQ 192).

Applicant argues that it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify Packer with Rose because Rose fails to teach any "surface profile" that is concerned with anatomy of living organisms. Applicant's argument is not persuasive because Packer and Rose are in the same field of imaging and image analysis. Further, Rose's paragraph [0005] suggests using surface profile to display fine detail of the object's surface in the images therefore one of ordinary skill in the art at the time of the invention would modify Packer with Rose to display fine detail of the heart surface.

Applicant argues the combination of Packer, Leiper, Rose and Hemler would not result in surface matching a 3D surface profile from 3D image data with a 3D surface profile from 3D mapping data. Applicant's argument is not persuasive because Packer discloses 3D mapping data and 3D image data, Rose discloses surface profile and Hemler discloses a 3-D surface matching technique therefore the combination of Packer, Rose and Hemler would result in surface matching a 3D surface profile from 3D image data with a 3D surface profile from 3D mapping data.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to HIEN NGUYEN whose telephone number is (571)270-

7031. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Long Le can be reached on (571)272-0823. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. N./
Examiner, Art Unit 3768

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768